

Assessment of the Strengths and Weaknesses of Past DOE Intern Programs



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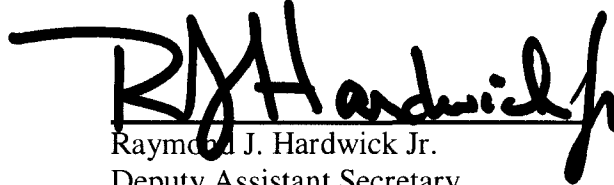
U.S. Department of Energy

APPROVAL

This report completes a requirement of the Federal Technical Capability Program Corrective Action Plan supporting the Department of Energy (DOE) *Implementation Plan to Improve Oversight of Nuclear Operations (in response to Defense Nuclear Facilities Safety Board Recommendation 2004-1)*. The report specifically supports Corrective Action 3.0 to “Reestablish the corporate Technical Leadership Development Program (TLDP–technical intern program) and institutionalize it through commitments to funding and recruitment for classes on an annual basis.”

This report evaluates why past intern programs lacked continuity and commitment and provides recommendations to prevent recurrence of past program weakness. This report will also serve as the basis for establishing a new DOE intern program.

Approved by:

A handwritten signature in black ink, appearing to read 'RJ Hardwick Jr.', is written over a horizontal line.

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BACKGROUND

Large corporations are continually faced with the challenge of having to recruit, train, and then retain, university-trained, talented personnel who can fill future technical leadership positions. The preparation and development of the right mix of new technical people ensures that critical technical capabilities are maintained within organizations as senior people retire or move elsewhere. The ability of organizations to plan for and carry out successful programs that can systematically replace retiring expertise with qualified individuals is essential to organizational survival. The Department of Energy (DOE) has struggled in the last decade to meet the growing need for replacements in key technical positions. Today, it is faced with having to address the significant loss of technical competencies as the result of the eligible retirement of 30 percent to 50 percent of its employees over the next 5 years (Human Capital Management–2004). Succession planning and the acquisition of human capital are central to the Department’s continued success.

Corporate intern programs have proven to be an effective avenue for providing individuals with the training and competencies needed to become effective technical contributors within the organization. An intern program may be defined as a formal, ongoing program for the recruitment, development, and retention of high-quality, entry-level technical professionals. A working definition of an intern is “an advanced student or recent graduate undergoing supervised practical training.”¹

DOE has had experience with implementing intern programs. In 1994, the Department launched the Federal Technical Leadership Development Program (TLDP) as one of its initiatives in response to the Defense Nuclear Facilities Safety Board’s (DNFSB) 93-3 Recommendation “Improving DOE Technical Capability in Defense Nuclear Facilities

¹ Ford Motors Inc., General Electric Inc., the Nuclear Regulatory Commission, the Defense Nuclear Facilities Safety Board, National Aeronautical and Space Administration, and numerous other corporate entities employ intern programs to augment conventional hiring programs.

Programs.”² The 1994 intern class included 21 newly recruited graduate engineers, a physics graduate, and a math graduate. The following class in 1995 was somewhat smaller in number. The program was defunct between 1996 and 1999. In 1999, the Department reestablished the TLDP and renamed it the Technical Intern Program. A new class of interns entered the program in FY 2000. This program ran for 3 years, but it was discontinued in 2003.³

Purpose of this Report

This report responds to Action Item # 3 in the Federal Technical Capabilities Program – Corrective Action Plan, 2005, calling for the reestablishment of the corporate TLDP, with commitments for funding and recruitment for classes on an annual basis. The supporting task for Action Item # 3 is to evaluate the reasons that past intern programs lacked continuity and commitment and to provide recommendations to prevent their recurrence, including providing appropriate Secretarial guidance.

It is recognized that the Federal government also sponsors intern programs that are available to DOE. The U.S. Office of Personnel Management (OPM) administers the Presidential Management Intern Program, which targets individuals with management potential who are about to receive or have recently received a graduate-level degree. The Federal Career Intern Program, created by Executive Order in July 2000, allows agencies to recruit individuals into a variety of occupations and to appoint them at entry grade levels (GS 5, 7, 9). This program requires a formal, 2-year training program, which could include rotational assignments. While these programs have merit and should be considered for preparing individuals for certain DOE positions, the future DOE intern

² In several annual reports to Congress in the early 1990s, the DNFSB observed: “. . . the most important and far-reaching problem affecting the safety of DOE defense nuclear facilities is the difficulty in attracting and retaining personnel who are qualified by technical education and experience to provide the kind of management direction and guidance essential to safe operation of DOE’s defense nuclear facilities.”

³ From reports to the DNFSB in 1994-95, and Annual Reports from the Federal Technical Capabilities Panel to the DNFSB, 1999-2003.

program should meet different needs. It should specifically target college graduates with outstanding credentials (strength of university, Grade Point Average, experience), with technical degrees (engineering, physics, math, etc.), and with a high potential for satisfying hard-to-fill critical positions that provide the management direction and guidance essential to the safe operation of DOE's defense nuclear facilities.

Organization of the Report

The report discusses the strengths and weaknesses of earlier intern programs and lessons learned in the following areas: senior management direction and support, recruitment, training, rotational assignments, placement, and program administration. A narrative discussion on the strengths and failures of prior technical intern programs in the Department is perhaps best undertaken within a framework of what constitutes a good intern program regardless of where it operates. With this premise, the following section addresses attributes of a strong intern program. The last section of the report discusses Secretarial guidance.

STRENGTHS AND WEAKNESSES OF EARLIER TECHNICAL INTERN PROGRAMS

The sources used to assess the strengths and weaknesses of prior programs include various annual reports from the Federal Technical Capabilities Panel, written observations from the DNFSB, feedback from earlier Intern Program Administrators, feedback from a Curriculum Review Committee composed of program participants, and input from prior interns. The strengths and weaknesses are organized by program element, including senior management support; program administration; recruitment; training; rotational assignments; permanent assignments; and placement. Lessons learned are included with each element.

Senior Management Direction and Support

Weakness: The Department has not always provided strong support to the Technical Intern Program sufficiently to promote its institutionalization through commitments to funding and recruitment for classes on an annual basis.⁴ The Technical Intern Program has often been negatively impacted by budget reductions.⁵ Since 1994, there have been more years that the program did not exist than when it did.

The lack of strong senior management direction and support in the past is evidenced in the design and structure of intern programs that were fundamentally flawed.

- Headquarters and field managers did not participate in the intern selection process and felt little or no ownership in the program.
- Interns spent too much time all at once in classroom instruction on a curriculum that was not well designed, and much of which was considered by participants to be a waste of time.
- Interns spent large chunks of time on rotational assignments that were not always productive and did not comply with the commitments made during recruiting.
- Interns were not hired to fill a specific position at a field office or program office, so they were not integrated into the workforce. After 2 years in the program, interns had to undergo a separate placement process to locate a permanent duty station and position.

Lessons Learned: Formal human developmental programs like the Technical Intern Program require senior management support to secure and sustain adequate funding;⁶ to

⁴ FTCP Independent Assessment Report, June 2000 and the 2002 FTCP Annual Report

⁵ DNFSB 93-3 Closure Letter, November 1999.

⁶ The recently instituted Future Leadership Program in National Nuclear Security Administration (NNSA) is funded by the Administrator's office.

ensure that the vision, mission, and objectives of the program are understood and supported by program offices; to oversee the design and structure of the program; and to shelter the program and its participants during budget downturns. Senior program management should approve the training curriculum, the timing of the training, the structure and extent of rotational assignments, and other developmental activities related to the program.

Recruitment

Strength: The Department did a good job of advertising for positions in the intern program as evidenced by the hundreds of applications received. This provided a very large pool of individuals from which to select program entrants’.

Weakness: Recruiters were not always clear about what types of jobs the interns would be doing once they completed the intern program. In some instances, all of the interviewers were Personnel Specialists (i.e., recruiters) who lacked program management, field, or laboratory oversight experience and who could not address specifics related to those assignments.

Weakness: Management from Headquarters and field offices did not always participate in the selection and hiring of interns and, consequently, felt little obligation to support the program. This is a symptom of a deeper problem in prior intern programs. Field managers were not involved in this process. Numerous other shortcomings resulted in the absence of field office participation.

Lessons Learned: Headquarters and field office management should participate in the selection of interns specifically to fill positions at their locations. The quality of the interviews will be improved, and management will have some commitment to the program and to the interns selected for hire. New interns should be assigned to their work stations early on and should take on work assignments there. Interns should also

participate in the intern program training, rotational assignments, and qualification activities throughout the duration of the program.

Training

Weakness in General: Intern training was often tightly bundled and scheduled at the beginning of the program. Interns complained about spending 3 months straight in the basement of the Forrestal building, attending class after class after class, and then going into applied engineering fundamentals courses for another 4 months in Colorado. There was too much instruction, too fast, without an adequate frame of reference. Relevance and application of the training were often lost to the interns. It appears that too often some of the training may have been selected to simply fill the time or was provided because it was available.

Weakness Related to the Applied Engineering Fundamentals Course (AEFC), (15 weeks of instruction; required for interns in the 1994 and 1995 classes): All interns were required to complete this course regardless of their prior education since there was no test-out or waiver option. Course materials were often at the undergraduate level, not at the graduate level appropriate for the interns. Requiring all interns to take all of the coursework was not productive and led several students to conclude that the AEFC was a waste of time. For example, an intern with a Master's degree in mechanical engineering should not be required to sit through a thermodynamics course when he/she could be taking a nuclear engineering course instead. Additionally, some interns reported that the pace of the instruction was much too fast and instruction was not always well organized or delivered systematically. Students were in class from 8:00 AM to 3:00 PM each day. There was no time for consultation with instructors and not enough time for personal study. Textbooks and assignments often were not available before each training module began. No text was ever provided for the chemistry module. Copies of overheads and instructor outlines were not available to students. Some of the courses appeared to be

thrown together at the last minute and professors “winged it.” Grading (and how the grades would be used and who would see the grades) caused anxiety and concern among the interns. The grading criteria were not fully explained before the course.

Lessons Learned: Training should be spaced out over the course of the intern program and not all lumped into the early months. Many courses would have greater impact if they were offered in smaller intervals after the interns have experienced some time on the job. Adults learn better under conditions in which they recognize how and where the training actually applies to their work. A training needs analysis should be conducted, and instruction that meets the knowledge and skill gaps should be included in the curriculum to meet the competency needs of interns. Nonessential training should be eliminated. Instruction that fortifies interns’ knowledge of engineering, operating and maintenance fundamentals, and safety should be the capstone of the intern training program.

Rotational Assignments

Strengths: Providing interns the opportunity to work in two or more DOE locations while in the program adds greater understanding and appreciation of the missions and objectives within the Department and gives interns first-hand experience in how various organizations interact. Rotational assignments are a good practice that is used effectively in many intern programs.

Weakness: Administration of this segment of the program did not always function smoothly. In some instances, the interns were told it was their responsibility to locate and create their own rotational assignments. This *laissez-faire* approach placed undue stress on interns because they were not always sufficiently knowledgeable to accomplish this action and had very little time as they were in training 80 percent of the time. Promises made to interns about rotational assignments were not always upheld. When recruited, some interns were told they could choose locations to contact and request their

rotational assignments. In actuality, one of the rotational assignments for an entire group was an environmental cleanup site, Rocky Flats. Interns were not given other options. Interns who joined DOE to be involved with energy issues were disappointed; others were apprehensive about working at contaminated facilities. On the group's second rotational assignment, interns were only allowed to select from certain office locations, and management could veto an intern's selection. In later intern classes, options in the selection of rotational assignments became very limited.

Weakness: Rotational assignments of 5 to 6 months in length are excessive. Some offices did not always have well-defined assignments for interns. A "we'll figure it out when you get here" approach may have prevailed in some locations. One intern reported that she was denied a very good first assignment and instead "sat in a Headquarters office for 6 months doing absolutely nothing."

Lessons Learned: Administration of the rotational assignment process, including contingencies, should be detailed in the program guidance document. The length of time for rotational assignments and the timing for when they take place should be carefully considered and prescribed. Duties and responsibilities for acquiring rotational assignments and administering them should be clearly stated. These procedures should be adhered to consistently, both during recruitment and in facilitating intern rotations.

Placement

Weakness: Placement of interns in the mid-90s may have been the biggest programmatic stumbling block. Interns were initially told they would carry their own funding with them to their permanent duty locations. But conditions changed with budget cuts and movement of funding; so, when it came time for intern placement, they were informed as to where the funded positions existed and told that they needed to be assigned to those positions. Some offices refused to take an intern because they would have to lose an existing staff member. In one instance there was an engaged couple in the program at

one point that expected to relocate together, but the accepting office refused to give up two positions, so one of the interns had to leave the Department. Others left because they could not find suitable placements at locations where they were willing to move. This condition may have resulted in losing about a third of the 1994 class of 23⁷.

Lesson Learned: Being hired to a specific position and assigned to a permanent duty station early on is a win-win situation for the intern and for the office. The decision about where an individual will work is an important one to most people. As one intern put it, “No one wanted a Richland assignment,” and some left the program when other options were not forthcoming. The intern who is hired to a specific position at a permanent duty station is quickly introduced to real work, is integrated into the organization, and becomes a contributing member of the staff while learning on the job as an intern. Decisions about how interns are to be financially absorbed into the full-time workforce should be clearly stated in guidance documents and upheld by all organizational elements. Technical interns should be exempted from reduction in force actions. Senior management at Headquarters and field offices should have dedicated funding in place and available positions to accommodate an intern coming to work.

Program Administration

Strength: In the times when the program existed, there were generous incentives available to attract top quality individuals into DOE and its intern program. One of these incentives included paying the costs for the completion of a Master’s Degree once the intern completed the 2-year program.

⁷ It was during this time that Jack Crawford, DNFSB Board Member, wrote the following in his Tech 10 Report to DOE: *DOE is having difficulties in attracting technical expertise because it has a poor reputation for hiring and effectively using its technical expertise.* (March 1996)

Strength: The intern selection process in the 1990s included the use of a senior panel consisting of three to five DOE staff members who screened the hundreds of applications and then interviewed selected individuals who met the specified requirements.

Weakness: Staffing plans developed in the Department to support critical technical capabilities were not always effectively used as a basis for recruiting, hiring, and developing interns. This condition was evidenced by the fact that some offices refused to accept interns at the end of their program, as though their contribution did not add sufficient value to their organization.

ATTRIBUTES OF A STRONG INTERN PROGRAM

The listing of attributes **bolded in this section** is the result of an assessment of several intern programs, including those of the National Nuclear Security Administration (NNSA) Future Leaders Program; other government agency intern programs; and intern programs in private industry. Additional input from discussions with individuals who administered prior Department intern programs, as well as reviews of findings from the DNFSB and from the Federal Technical Capabilities Panel related to intern programs, have helped in formulating the attributes list. Brief detail narrative is included with each attribute to explain its significance.

DOE senior management must provide leadership, commitment and management oversight for the intern program. This includes appropriation of the funding to administer the program and executive-level direction and support to the offices that will participate in the program. Also included are oversight of the training curriculum, rotational assignments, and other intern program activities.

The Intern Program must be integrated with the Department's succession plans and staffing programs. The critical technical capability staffing plans (or equivalents) developed by Headquarters and field offices should be the basis for recruiting, hiring, and

developing interns. Interns should know specifically the kinds of position(s) they are being interviewed to fill. Managers should be able map their intern class member to one of the funded positions available in their program.

Administration of the Intern Program should be centralized. There should be a champion for the program and a budget to administer the program and pay salaries for the interns while in the program. Intern programs are very labor intensive. The recruitment and hiring, the coordination of training, the administration of travel and logistics associated with rotational assignments, and a myriad of other program details will require that a program director or administrator(s) be dedicated full-time to this effort.

The Intern Program should be clearly defined in a guide, manual, or procedure.

The guide should address program administration, duties and responsibilities, program structure and framework, recruitment and hiring, training curriculum and qualifications, field assignments and rotational assignments, and special features such as payment of student loans and/or payment for an advanced degree in return for guaranteed service.

The Intern Program should provide meaningful incentives to join DOE. Incentives may include moving-expense reimbursement to the intern's first duty office (in accordance with the Federal Travel Regulations). Other incentives may be a recruitment bonus and/or student loan repayment for completed university education costs in return for a service agreement.

Representatives from Headquarters and the field offices should be involved in the selection process. Following preliminary application screening and recruiting interviews at college campuses, follow-up interviews at DOE offices should include personnel involved with DOE mission operations. Supervisors and others participating in the interviews should be prepared to discuss the job position(s), competencies, and expectations for the individuals who will fill the position(s).

Intern classroom training should be sequenced with on-the-job training and “field” experience rather than bundled together. The new-hire required training and some common core training should be completed early on. However, interns should have some work experience along the way so that when they do take courses such as environmental management or project management, they will have a work reference point from which to ground these courses.

Common core training should apply to all participants. The common core training should be carefully selected. For example, it could include regulatory training, nuclear and industrial safety required training, security training and similar types of training. Core training should also include orientation to DOE organizations, missions, structure, policies, and operations. Orientation to regulations, rules, policies, orders, technical standards; and the Federal budget process should also be included.

Much of the technical training for individual interns should be tailored to the position. An individual’s training should be selected based on what is needed to meet minimum working knowledge, job requirements, and competencies required for the position the individual will fill and his/her personal development interests. Selection of courses should ensure the intern is properly prepared in all areas of safety management. These courses may include Radiation Worker II, HAZMAT, criticality safety, emergency preparedness, conduct of operations, configuration management, fire protection, chemical process safety, integrated safety management, risk assessment, and safety analysis training. Applied Engineering Fundamentals Courses or similar baseline technical courses should be accompanied with a test-out option to exempt individuals who have prior training, education, and/or experience that matches the course objectives.

Interns should be assigned to and work toward completion of the technical qualification program requirements. The Individual Development Planning (IDP)

process used in DOE should be applied to interns. The comprehensive IDP should clearly show progression of the intern as he/she meets requirements. The General Technical Base Qualification Standard, a Functional Area Qualification Standard, and the site-specific standards, as appropriate, should be included.

Interns should be assigned to a supervisor within their Program office. The intern should be assigned meaningful work on a specific project and should be held accountable for task completion. The supervisor provides orientation to the office; arranges for appropriate site-specific security, safety, and related briefings; and ensures work assignments are challenging, meaningful, and support the intern's professional development. The supervisor provides the necessary resources for interns such as office space, materials, and equipment. Individual intern performance in the program should be reviewed on a regular basis, and feedback should be provided about how the intern is progressing. Interns who are not performing at the expected level or who fail to progress over time should be counseled and assigned corrective actions.

Interns should be assigned a mentor within their Program office. The mentor is not the intern's supervisor, but assumes the role of teacher and counselor and provides personal assistance and guidance in navigating the intern through the program. The mentor assists in the preparation of the intern's IDP, recommends training and rotational assignments, provides frequent coaching and feedback to the intern, and counsels the intern on his/her career development. Mentors identify technical and professional employee resources that can provide exposure to other parts of the organization, decision-making styles, problem solving techniques, and attributes for success.⁸

⁸ The use of mentors as coaches, trainers, and counselors to guide new employees has proven successful in many developmental programs. The key is to select mentors who have a genuine interest; who are good communicators, good role models, and good resources of information; and who are seasoned veterans.

The program should include both Headquarters and field office rotational assignments. Assignments at Headquarters Program Offices and/or other field offices should be made to broaden the intern's work experience and understanding. Rotational assignments should include meaningful work that is tied to a discrete objective.⁹

The Intern Program must be centrally funded and post-intern assignments must be funded positions. While interns are in the program, their salary and expenses (training, travel, etc.) should be paid from the intern program budget. The intern should be able to move effortlessly into a funded assignment following program completion and proceed on with their professional career.

CONCLUSION

The Department has made several attempts to implement a continuing, successful intern program that effectively meets the needs of the Department. The continuing need has resulted in expending considerable effort in establishing new intern programs or plans for new intern programs at the Program Office level that have not always been successful.

Current efforts to address this issue include the ongoing NNSA's Future Leaders Program, which was implemented in 2005. A review of that program's documentation indicates that the program is structured to address, or partially address, many of the past program lessons learned identified in this report. The key to the success of NNSA's Future Leaders Program is implementing the program as envisioned and documented. While the final success of this program is yet to be determined, periodic reviews of the program are being performed by senior NNSA management in the NNSA Administrator's office.

⁹ The DNFSB, the Nuclear Regulatory Commission, and NNSA (Future Leaders Program) all make use of rotational assignments as part of their development program for special developmental new hires.

Existing plans for other new intern programs include an implementation plan for the DOE Scholars Program, which was developed by the Office of River Protection. A review of the implementation plan reveals that this proposed program will also address many of the weaknesses of past programs, if implemented.

These fragmented efforts clearly reflect that:

- 1) There is a well-recognized need within the Department to establish a pipeline of interns that will replace the senior, retiring DOE workforce.
- 2) Past intern programs have been less than fully successful and have not been consistently conducted to meet the future needs of the Department.
- 3) Succession planning is not effectively used in the Department.

RECOMMENDATIONS

The Federal Technical Capability Panel Corrective Action Plan addresses concerns raised in DNFSB Recommendation 2004-1, related to “Ensuring Technical Capability and Capacity to Fulfill Safety Responsibilities.” The plan specifically identifies actions that will address the weaknesses identified in this report and will ensure that future intern programs are developed and conducted using a common standard. This plan should be followed to completion.